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ABSTRACT

This final report describes the activities and outcomes of a 3-year federally funded project that developed and evaluated interventions aimed at increasing retention of special education teachers. The interventions developed and evaluated consisted of: (1) a series of stress management workshops aimed at preventing or alleviating teacher burnout, and (2) a peer collaboration program designed to facilitate supportive collegial interactions among pairs of teachers regarding work-related problems. A modified cross-over design, in which 92 special educators were randomly assigned to either of two treatment groups or a wait-list control group, was used to evaluate the interventions' effects on factors correlated with actual turnover. The intervention package was developed, implemented, and evaluated in one site during the first 15 months of the project, and was then replicated in the study's second year at another site. After participating in the 10-week, two-part program that consisted of stress management and peer collaboration, participants felt less burned out, and felt more satisfied with and committed to their jobs. The report contains an overview of the problem of high turnover rates in special education, the specific goals and objectives of the project, and the research findings. (Contains 54 references.) (CR)

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DEVELOPING AND EVALUATING INTERVENTIONS AIMED AT INCREASING RETENTION OF SPECIAL EDUCATION TEACHERS (TEACHER SUPPORT & RETENTION PROJECT)

FINAL REPORT

PR/Award # H023N0031
Research in Education of Individuals with Disabilities Program

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I. Abstract

Delivery of educational services to children, youth and preschoolers with disabilities requires adequate numbers of qualified special education teaching staff. High turnover rates within the field have caused great concern in recent years, suggesting the need for the development and evaluation of interventions that increase schools' abilities to retain their special education staff members.

Many factors contribute to burnout and turnover among special educators, including low salaries, excessive caseloads and paperwork, challenging student characteristics, and a sense of isolation stemming from a lack of collegial and administrative support. Unfortunately, many of the less than desirable aspects of the special education profession (e.g., low salaries, documentation requirements, challenging student behaviors) do not fall within a teacher's or administrator's purview to change due to budgetary, legal, or other constraints. Moreover, the burnout that teachers experience in response to these stressors can itself exacerbate the problem because of its accompanying negative and self-defeating behaviors and attitudes.

Some facets of the turnover problem lend themselves more readily to intervention efforts because they do not require large-scale organizational or political modifications to implement. The interventions developed and evaluated by this 3-year project consisted of: 1) a series of stress management workshops aimed at preventing or alleviating teacher burnout, and 2) a peer collaboration program designed to facilitate supportive collegial interactions among pairs of teachers regarding work-related problems.

A modified cross-over design, in which participants were randomly assigned to either of two treatment groups or a wait-list control group, was used to evaluate the interventions' effects on factors correlated with actual turnover. The intervention package was developed, implemented and evaluated in one site during the first 15 months of the project, and was then replicated in the study's second year at another site. Program procedures and results were disseminated during the final year of the project.

This report contains an overview of the problem addressed by this research, the specific goals and objectives of the project, a description of the interventions developed and the means by which they were evaluated, the research findings, and finally, the nature and impact of the dissemination and outreach activities that occurred.

II. Background & Statement of the Problem

Insufficient Numbers of Special Education Teachers

The educational system faces a serious challenge. By law, children, youth, infants and toddlers with disabilities are entitled to receive free, appropriate educational and early intervention services. Public funds are allocated to these purposes, and educational agencies exist to implement them. Unfortunately, however, school systems often experience enormous difficulties in carrying out their responsibilities to students because of problems they encounter in recruiting and retaining adequate numbers of special education teachers.

Shortages within the special education work force were significant enough to warrant a priority on the need to identify factors related to special education attrition and retention during the same funding cycle as spawned this research project (May 6, 1991 Federal Register). A 1987 survey conducted by the Association for School, College and University Staffing indicated that the field of special education has among the worst shortages in all of education (Breton & Donaldson, 1991), and the condition continued to worsen (Akin, 1988).

Enrollments in special education teacher preparation programs declined by as much as 35% between 1981 and 1991 (May 6, 1991 Federal Register). At the same time, medical technology kept advancing to a point where people more often survive events that in the past would have been fatal. Thus, the population of students requiring special education grew while the pool of available teachers shrank.

At first glance, the problem of special education teacher shortages appeared to be an inadequate supply of new teachers to meet the growing demand for them. Indeed, previous data exist raised serious questions about the ability of teacher education programs to recruit and select sufficient numbers of students who exhibit high academic quality (Ludlow, 1985; Schlechty & Vance, 1983). Recruitment issues involving special education teacher preparation programs figured prominently in the literature for a time (e.g. Courtnage & Smith-Davis, 1987; Kaiser & McWhorter, 1990), the assumption being that by bringing in more and better people to the field and improving the quality of the preparation they receive, the crisis would be forestalled.

Certainly, the issues of recruitment and selection of special education teachers warrant attention as potential avenues of addressing the teacher shortage problem. However, school districts' attrition data suggest that the central issue is not so much one of recruitment, but rather one of retention of those individuals who do choose to enter the special education teaching profession. As early as 1983, Schlechty & Vance pointed out that

"to understand the difficulties schools now have in recruiting and selecting academically able people to teach, one must understand that schools are not organized to retain the services of these people after they are recruited. Indeed, until schools become attractive places for the academically able to pursue careers, discussing issues of selection and retention is basically meaningless....To concern ourselves with recruiting and selecting high-ability people for schools without first making schools more attractive to these people is likely to be dysfunctional" (p. 477-478).

Some amount of turnover in any field is to be expected. Changes in employees' personal circumstances (e.g. relocation, a change in marital status), or general preferences (e.g. the desire for a change in schedule or professional direction) lead some employees to leave their jobs, and special education is no exception to this (Billingsley, 1991). However, the some available figures on annual turnover rates among special education teachers have been alarming, being as high as 30% per year in some areas (May 6, 1991 Federal Register). That degree of turnover is far worse than what is typically present in other professions, including regular education (Billingsley, 1991; Mobley, 1982).

Furthermore, studies attempting to answer the question of who is leaving the field indicate that it is frequently the newer and the most academically able teachers who depart (Lyson & Falk, 1984; Mark & Anderson, 1985; Rosenholtz, 1989; Schlechty & Vance, 1983). For example, it has been shown that more than 50% of beginning teachers leave special education within the first five years (Lauritzen, 1988; Mark & Anderson, 1985; Rosenholtz, 1989; Schlechty & Vance, 1983), and the performance and school commitment of those who remain are often seriously impaired by burnout and its effects (Farber, 1984; Rosenholtz & Simpson, 1989).

In its 11th Annual Report to Congress in 1989, the U.S. Department of Education's Office of Special Education Programs stated that problems of special education teacher supply and demand were of critical importance. Thus, identifying means of retaining current and future special educators was seen to be an endeavor of utmost urgency if services to children with disabilities were to be delivered adequately. In arriving at potential solutions to the turnover problem, we found it useful to examine the existing evidence regarding the factors contributing to it. Any intervention aimed at enhancing retention needs to take into account what is known about the reasons special education teachers leave the profession, and then specifically target those barriers to retention.

The literature has pointed quite clearly and repeatedly to certain difficulties within the current system and to frustrations routinely faced by special education teachers.

Factors Contributing to the Turnover Problem

Numerous factors have been demonstrated or posited to contribute to the high rate of turnover among special educators, and these will be enumerated presently. Some of these factors are given, in that they are somehow inherent to the situation, and therefore not subject to change. Similarly, there are certain factors that, while perhaps suitable as long-term targets of change efforts, would require such large-scale organizational or political intervention as to render them impervious to efforts designed to offer any immediate redress.

On the other hand, there exist those elements of the problem that lend themselves more readily to immediate intervention efforts. These are the factors over which teachers themselves have some control, and/or which fall within a school administrator's purview to change or grant permission to address. The more alterable factors, then, provide the more suitable targets for immediate intervention, and thus form the basis of the interventions that were developed and evaluated via this project.

Following is a discussion of both the inherent ("given") factors as well as the more alterable factors that together contribute to the turnover problem.

Student Characteristics: Challenging or aggressive student behaviors can be extremely stressful for teachers, particularly when teachers feel ill-equipped to handle them effectively (Fimian, 1986; Fimian & Blanton, 1986; Lombardi & Donaldson, 1987). Even with adequate preparation, many student behaviors and characteristics can be difficult to contend with. Another source of frustration and dissatisfaction for many special education teachers is the frequent lack of visible student progress (Billingsley, 1991; Meadow, 1980). Management literature has indicated that feedback from one's job in the form of meaningful, visible accomplishment is a key element in job satisfaction (Hackman & Oldham, 1975). Yet unfortunately, special education teachers often lack this form of feedback due to the nature of the population they serve.

Job Requirements: Special education teachers are required to individualize their instruction to meet the needs of each student. Creating IEPs involves a great deal of planning, documentation, and collaboration with parents and related services personnel. Excessive paperwork and insufficient planning time have been cited often as stressors (Olson & Matuskey, 1982). Some even cite evidence of multidisciplinary-team-related stress, referring both to the sheer amount of time required to participate in meetings, and to the frustration of participating in meetings that are perceived as unproductive (Dangel, Bunch & Coopman, 1987; Fleming & Fleming, 1983).

Resource Shortages: Due to budgetary constraints, teachers in special education settings are often paid very low salaries (Lawrenson & McKinnon, 1982), and may experience frustration over a lack of necessary materials and

resources (Cook & Leffingwell, 1982). In addition, they frequently bear heavy student caseloads (Fimian & Santoro, 1983; Olson & Matuskey, 1982). These difficulties stem in large part from the fact that the population of children legally entitled to special education continues to grow, but the degree to which the public monetarily backs the educational mandates does not necessarily increase. Thus, a limited pool of money must be spread among more and more personnel and programs, resulting in a situation in which teachers are often overworked and underpaid.

Lack of Administrative Support: One of the most frequently cited reasons for leaving the special education teaching profession is a perceived lack of support and supervision from administration (Billingsley, 1991; Breton & Donaldson, 1991; Darling-Hammond, 1984; Fimian, 1986; Rydel, Gage & Colnes, 1986; Lawrenson & McKinnon, 1982). Common complaints include administrators' poor quality of supervision and feedback, lack of professional guidance, poor communication skills, unavailability and even incompetence. It is unfortunate yet not surprising that many of these difficulties occur, in light of the fact that administrators typically receive very little, if any, training in supervisory skills, and frequently feel inadequate in the performance of supervisory tasks (Billingsley, 1991; Moya & Glenda, 1982). Moreover, administrators of special education teachers (e.g. building principals), often lack special education background and experience, making it more difficult for them to offer specific, useful programmatic suggestions/feedback than it might be for a supervisor possessing such background (Davis and McCaul, 1987).

Collegial isolation. The organizational structure of schools has been characterized in the management literature as a "loosely coupled system" (Weick, 1982). That is, teachers tend to have a great deal of autonomy because individual classrooms are cellular and function independently of one another. Although a certain amount of autonomy is helpful in contributing to job satisfaction (Hackman & Oldham, 1975), too much of it can result in a feeling of personal and professional isolation. Various empirical studies have indicated that isolation or lack of support from one's colleagues negatively influences special education teachers' job satisfaction and contributes to higher attrition (Chandler, 1983; McKnab & Mehring, 1984; Fimian, 1984; Fimian, 1986). Conversely, the presence of such support from other teachers has been associated with lower stress and burnout levels (Fimian, 1986).

Burnout, Learned Helplessness and Special Education Teachers

All of the above elements have been linked in the literature to special education teachers' job dissatisfaction, burnout and high rate of attrition. Since the experience of burnout is so closely related to employees' decisions to leave their jobs (Pines & Aronson, 1988), a brief discussion of the nature of burnout is useful. The relationship between burnout and learned helplessness theory

sheds interesting light on the issue as well, and helped shape our identification of appropriate intervention strategies.

Burnout is a common phenomenon in the helping professions, and has been defined as a syndrome of physical, emotional and mental exhaustion, and cynicism resulting from repeated exposure to emotionally demanding work situations over which there is a real or perceived lack of control (Farber, 1983; Maslach, 1982; Pines & Aronson, 1983). Typical signs of burnout include physical depletion, quickness to anger, mild depression, the lack of a sense of personal accomplishment, feelings of helplessness or hopelessness and disillusion (Greer & Wethered, 1984; Pines & Aronson, 1988; Zabel & Zabel, 1982). Interestingly, as Greer & Wethered (1984) point out, "many articles have been published focusing on teacher burnout and the effects of stress. Most describe affective motivational and behavioral deficits which, at least in part, parallel those associated with learned helplessness" (pp.524-525).

Learned helplessness theory originated from studies of animals (Overmier & Seligman, 1967). In the original study, dogs were placed in rooms having electrified floors, and subjected to continual shock. One group of dogs were taught to escape the shock by jumping over a barrier, while for a second group escape was impossible. Later, when the barrier was removed and escape made easy, the dogs in the previously helpless group made absolutely no effort to escape, but rather continued passively to cower, whimper and receive the shock. The original work on learned helplessness was extended across various types of animals (e.g. Masserman, 1971), and then to studies of human beings (e.g. Miller & Norman, 1979). Thus, there now exists a large body of research indicating that perceptions of uncontrollability and holding the belief that one's actions are not directly tied to outcomes result in self-defeating behaviors and attitudes (Greer & Wethered, 1984).

One of the reasons special education teachers are at such high risk for burnout and attrition is that, indeed, many of the stressors they experience may be somehow inherent to their job situation and therefore not under their control. By the same token, some of the stressful factors may require large-scale organizational or political action to remediate, or require the cooperation of other potentially uncooperative parties. They too, then, would appear to be functionally beyond the teachers' control, thus adding to teachers' perceptions of helplessness and experienced burnout. These perceptions of helplessness themselves may in turn contribute to or actually create additional job stresses by leading to teachers' own negative behaviors (Greer & Wethered, 1984). For example, a burned-out teacher may experience and act upon negative attitudes toward students, thereby reducing his/her effectiveness, which in turn could result in complaints from parents and a further lack of support from administration. Furthermore, a sense of learned helplessness and burnout may even render teachers incapable of noticing improvements in their working conditions that are implemented on their behalf. Thus, burnout itself is a serious

problem, since it directly affects teachers' ability to perceive and benefit from other job-related improvements.

Choosing Appropriate Targets for Intervention

Clearly, numerous factors, either singly or in combination, may contribute to a special educator's burnout and decision to leave the field. Such a decision results when a teacher's perception of the costs of remaining in a position outweigh the perceived benefits of doing so, and when s/he feels incapable of effecting desired change. Therefore, interventions aimed at improving schools' abilities to retain their staff members need to focus on ways to maximize the perceived advantages of staying and teachers' perceptions of control over their own circumstances, while minimizing or offsetting the perceived disadvantages and feelings of helplessness.

In arriving at realistic means for addressing the turnover problem, we found it useful to consider each of the factors contributing to it in terms of its mutability (either by teachers or others), the cost-effectiveness or feasibility of attempting to change it, and the length of time required to produce results. Each of the contributing factors identified above is considered next in terms of the degree to which it lends itself to immediate, cost-effective intervention, and the extent to which it is under teachers' own control.

Of the contributing factors already discussed, those stressors pertaining to student characteristics, job requirements and resource shortages appeared the least practical to address. Regarding student characteristics, in particular, the nature of special populations is such that there are some inherently stressful circumstances surrounding them (e.g. aggressive behaviors, medical emergencies, etc.). While adequate preparation and training are certainly helpful in offsetting these stresses, students' problem behaviors and frequent lack of visible progress nonetheless often remain and are not likely to be eliminated as sources of teachers' stress.

Stressors that have to do with job requirements and resource shortages also do not lend themselves to feasible, cost-effective intervention, because to effect change would require large-scale, systemic organizational or political action. For example, many of the job requirements such as IEP documentation and frequent participation in multidisciplinary team meetings are mandated. Similarly, providing an increase in teachers' salaries and available resources, while certainly desirable, is not feasible in the short-term because such an action would likely require the passage of tax levies to secure the funds necessary to implement it.

The lack of administrative support provides yet another example of a factor that, while certainly meriting attention and action, is not a likely target for immediate change. As mentioned earlier, many administrators lack supervisory

and/or special education training. Thus, it is hardly surprising that the quality of support they are capable of offering special education staff is problematic. Unfortunately, until training programs or administrative position requirements are substantially altered, these deficits in administrative preparation are likely to remain. Furthermore, while inservice training for administrators in supervision or special education issues offers one promising avenue, it is an option that requires the cooperation and participation of people other than those experiencing the difficulty, and who may not view their own performance as a problem.

Many of the stressors associated with the special educator's role, then, are beyond the teacher's (or others attempting practical cost-effective intervention on their behalf) immediate control. Consequently, they are not likely to be changeable within a reasonably short time-frame.

One exception to this is the sense of collegial isolation experienced by so many special educators. In contrast to many of the stressors, collegial isolation is one that does indeed lend itself to improvement in the short term because it is one over which teachers themselves have control. There are actions that teachers themselves can choose to take that can potentially alleviate this particular source of job stress by fostering collaboration and mutual problem-solving among teaching peers (Johnson & Pugach, 1991).

Another avenue of redress, given that so many of the stressful aspects of a special education teacher's job are relatively inherent or not changeable in the short term, is to equip teachers with coping skills that boost their ability to manage stressful situations and prevent or alleviate burnout. Stress management and burnout reduction interventions have been developed and tested with other populations, such as regular education teachers (Russell, 1987) and parents of children with disabilities (Singer, Irvin, Irvine, Hawkins & Cooley, 1989). Making such programs available to special education teachers can potentially alleviate the turnover problem by providing additional supports to teachers that enable them to cope better with the demands of their profession.

Purpose of this Research: Piloting Two Interventions aimed at Reducing Collegial Isolation and Alleviating Teacher Burnout

This project examined the combined and differential effects of two interventionsdesigned to reduce the likelihood of special education teacher attrition by alleviating burnout and enhancing job satisfaction. These interventions, conducted with special education teachers and related services personnel in teaching roles, consisted of : a) a series of stress management training workshops for special education teachers, and b) a peer collaboration program that provided training in a brief, structured interactional process to pairs

of teachers, and facilitated their regular problem-solving and support regarding work-related issues.

III. Goals of the Teacher Support & Retention Project

The overarching aim of the Teacher Support & Retention Project was to address the special education turnover problem by developing and evaluating the effectiveness of interventions designed to support and sustain special educators in carrying out their roles. The specific goals of the project were to:

1. Develop burnout prevention and peer collaboration intervention procedures.

2. Implement the two interventions with each of three groups in an initial site for the purpose of assessing their effects on variables related to staff retention.

3. Replicate the study in a second locale.

4. Evaluate the combined, differential and order effects of the two interventions.

5. Disseminate project findings.

IV. Rationale for & Description of the Interventions Developed & Evaluated by the Project

Rationale

As noted above, special educator attrition stems from many root causes, some of them "givens" and some of them "alterables." Given the urgency of the attrition problem, it behooves us to begin with the most visible and changeable aspects of the problem, even as efforts to implement larger scale systemic changes are undertaken. In contrast to the givens (e.g., student characteristics, relatively low salaries, etc.), certain facets of the attrition problem appear more alterable in the short term and thus lend themselves more readily to immediate intervention efforts. These include such things as an individual's response to the stressors s/he encounters, the quantity or quality of collegial interactions available, and access to appropriate alternatives to administrative support when such support is lacking. These are the factors over which teachers themselves have some control, and/or which fall within a school administrator's purview to change or grant permission to address.

One such approach involves equipping teachers with coping skills that boost their ability to manage stressful situations and prevent or alleviate their own burnout. Coping, as defined in stress literature, refers to the attempts a person makes to master challenging or difficult circumstances (Monat & Lazarus, 1977; Goldberger & Breznitz, 1982). Thus, it does not imply success, but only one's efforts to deal with the situation (Pines & Aronson, 1988). Coping takes many forms. Approaches to handling stress may be either direct (e.g., changing the source of stress) or indirect (e.g., changing the way one thinks about or physically responds to the stress in order to reduce its impact). In addition, coping strategies may be active (e.g., taking some action to change oneself or the situation) or inactive (e.g., avoiding or denying the source of stress). In general, active strategies are more effective than inactive ones, while both direct and indirect strategies can be constructive (Pines & Aronson, 1988).

Stress management and burnout reduction interventions have been developed and tested with other populations, such as regular education teachers (Russell, 1987) and parents of children with disabilities (Singer, Irvin, Irvine, Hawkins, & Cooley, 1989). They have been called for repeatedly at both the preservice and inservice level for special educators and related service providers (e.g., Greer & Greer, 1992; Banks & Necco, 1990; Platt & Olson, 1990).

Enabling special educators to cope more effectively with the stressful demands of their profession may potentially alleviate the turnover problem in the short term. Naturally, the long-term goal would be to reduce or eliminate the need for such stress management approaches by making the job itself less stressful. Realistically, though, achievement of that goal will require broad-based systemic changes over considerable time.

A second approach involves reducing the collegial isolation that special educators so commonly experience. Interventions that offer opportunities for collaborative work-related problem-solving and support have been repeatedly called for in the literature (e.g., Billingsley, Bodkins, & Hendricks, 1993; Kushman, 1992; Rosenholtz, 1989). Such approaches have been developed and evaluated in other contexts including pre-referral intervention (e.g., Johnson & Pugach, 1991), and such programs potentially improve retention by reducing collegial isolation via constructive, collaborative dialogue between professional peers.

Lack of administrative support is very often cited as a major contributor to the attrition problem (Billingsley, 1993; Brownell & Smith, 1992). Thus, peer collaboration programs are not only potentially useful as a means of overcoming collegial isolation (Billingsley, Bodkins, & Hendricks, 1993), they are also promising as means of enabling professional peers to provide for one another some of the assistance and support they may lack from their administrators. One study of resource room teachers' satisfaction regarding the kind and degree of administrative support they received indicated that the support need not come

from a supervisor in order to be perceived as useful (Breton & Donaldson, 1991). This is not to say that the quality of administrative support does not warrant attention as a significant problem in its own right. Rather, the use of peer collaboration strategies vis-a-vis retention constitutes a valuable stop-gap intervention on one alterable facet of the problem.

Because of the apparent value of collegial support in preventing or alleviating job stress and burnout, many have advocated the development of procedures for building in more regular opportunities for peer support for special education teachers and others in stressful job roles (e.g., Billingsley & Cross, 1992). For example, peer support groups have in the past contributed to the prevention of burnout in human service agency staff (Maslach & Pines, 1977).

Johnson and Pugach (1991) describe a Peer Collaboration Program that was shown to be effective as a pre-referral intervention among general educators. As such, it promoted structured, reflective problem-solving interactions between teaching peers about student-related problems. Because of its emphasis on supportive, constructive dialogue between professional peers, it is particularly relevant as a means of addressing issues of collegial isolation and lack of administrative support among special educators.

The two interventions developed/modified under this project were designed to equip participants with specific problem-solving and coping strategies for dealing more effectively with the stressors they encounter on the job. In other words, they targeted "self-preservation" skills for special educators--those skills and strategies most likely to help an individual remain relatively "sane" even in relatively "insane" places!

Description of Interventions

Intervention One: Stress Management/Burnout Prevention Workshops

This component of the program was designed to expand teachers' repertoires of effective coping strategies. It drew on and expanded upon previous work on reducing stress and burnout among educators (Russell, 1987), parents of children with disabilities (Singer, Irvin, Irvine, Hawkins, & Cooley, 1989; Singer, Irvin, & Hawkins, 1988), and health care professionals (Scott & Jaffe, 1990).

It consisted of five weekly 2-hour workshops which were informal and supportive, and followed a format of interactive presentation, small/large group discussion, applications during sessions and practice in-between sessions. The content for these sessions targeted three types of coping skills:

1. Skills for changing the situation itself: Situational Coping Skills. Drawing on management and problem-solving literature, these two sessions offered two

frameworks for looking at and changing stressful situations by first identifying the changeable aspects and then using a problem-solving approach to develop and carry out an action plan for creating solutions. Participants were also provided specific assertive communication tools for enlisting the cooperation of others in seeking and implementing positive change, and for setting and keeping appropriate limits.

2. Skills for changing one's physical response to the situation: Physiological Coping Skills. Stress is fundamentally a form of wear and tear on the body. Thus, a variety of literature on physiological stress-coping strategies was drawn on for this session. Participants learned both long (30-minute) and very short (30-second) forms of muscle relaxation that can be used for self-renewal in everyday work situations (Woolfolk & Lehrer, 1984). Other physiological approaches for coping with stress (e.g., nutrition and stretching) were touched upon briefly as well.

3. Skills for changing how one thinks about the situation: Cognitive Coping Skills. Simply put, much stress happens "between the ears." This session drew on cognitive therapy literature and targeted ways to replace self-defeating, self-limiting beliefs with beliefs that are more constructive, realistic, and empowering. Participants learned first to recognize distorted or self-defeating beliefs and then to coach themselves and one another to think differently about themselves or about the situation. Specifically, they coached one another in ways to let go of unrealistic, even tyrannical expectations they hold of themselves given the limitations and realities of the situations they face, and to give themselves permission to view their best as good enough.

Intervention Two: The Peer Collaboration Program

The Peer Collaboration Program, as originally developed by Pugach & Johnson, consisted of training pairs of teachers to use a four-step collegial dialogue to assist each other in identifying and solving student-related problems. We modified it to apply to other work-related problems as well. Via this process, each member of the pair takes a turn as an "initiator" (the one presenting a problem) and a "facilitator" (the one providing assistance in problem-solving). The four steps consist of:

1. Clarifying: The initiator brings a brief written description of the problem and responds to clarifying questions asked by the facilitator. This step is the longest, and is designed to assist the initiating teacher to think of the problem in different or expanded ways. This step continues until the initiating teacher feels that all of the relevant issues have been covered and is ready to move on to summarizing.

2. Summarizing: In this step, the initiating teacher summarizes three facets of the problem being discussed: the specific patterns of behavior that are

problematic, the teacher's typical response to and/or feelings about the problem, and the identification of variables that fall under the teacher's control.

3. Intervention & Prediction: The pair together generates at least three possible action plans, and the initiator predicts potential positive and negative outcomes for each one. The initiating person then chooses one or more of the generated solutions for implementation.

4. Evaluation: The initiator develops an action plan and a method to monitor its effectiveness. The facilitator offers prompts to ensure that the plan is practical and allows for monitoring of its success to take place. The pair then agree on a time to meet again approximately two weeks later to follow-up on one another's progress.

Participants attended one three-hour training session in which the process was described, modeled and practiced with feedback. Professionals then met weekly for the next four weeks with their peer partner. At the weekly sessions, each peer had an opportunity to apply the process to any work-related problem s/he faced.

V. Study Design

A modified cross-over design was used to assess the two interventions separately and in combinatyion (Neter, Wasserman, & Kutner, 1985). Participants were recruited via fliers & announcements at staff meetings and randomly assigned to one of three groups: treatment group 1, treatment group 2, and a wait-list control group. The two treatment groups received the interventions in reverse order, and the wait-list control group received both interventions after the first two groups' completion of them (see Figure 1attached). The flucuating n's refect instances of non-usable or incomplete data received from parrticipants on several occasions).

Measurements of outcome variables were taken prior to intervention and repeated periodically--subsequent to each intervention and approximately every 6 months throughout the study. This measurement schedule enabled tests of treatment group effects, time effects, and interactions between group and time.

The interventions were designed to impact retention itself, so obviously, the ultimate measure of effectiveness would be the degree to which actual staff turnover is affected. Time and sampling constraints precluded our assessment of actual attrition rates, so proxy measures (i.e., those that have been demonstrated to be correlated with employee attrition) were employed instead. These consisted of job satisfaction, job burnout, and organizational commitment..

Job satisfaction was measured by scores on the Minnesota Satisfaction Questionnaire (MSQ) (Weiss, Dawes, England, & Lofquist, 1967), one of the more widely used measures of job satisfaction. In the 20-item condensed version of the MSQ, respondents rate their satisfaction with various aspects of their job using a five-point scale.

Job burnout was measured by scores on the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981), a 22-item questionnaire that asks respondents to rate on a 6-point scale the frequency with which they experience certain feelings regarding their job. The inventory consists of three subscales measuring emotional exhaustion, depersonalization, and lack of personal accomplishsment.

Organizational commitment, the relative strength of an individual's identification with and involvement in a particular organization, was measured by the Organizational Commitment Questionnaire (OCQ) (Porter, Steers, Mowday, & Boulian, 1974). The OCQ is a 15 item questionnaire in which respondents rate the extent to which they agree with statements such as "I really care about the fate of this organization" using a 7-point scale.

In addition to the above outcome measures, social validation measures were developed and administered to assess, using a 0-3 scale, the extent to which participants viewed the goals of the programs as important and as being achieved. In addition to the numerical ratings, participants were asked to provide open-ended written comments regarding the two interventions.

VI. Participants

A total of 92 special education teachers and related service providers participated in the study. Via fliers and announcements at staff meetings, they were notified of the opportunity to participate in a free program aimed at reducing job burnout and enhancing collegial collaboration. To be eligible to participate, they were required to take part in both interventions.

Participants were randomly assigned to groups which were found not to differ significantly from one another demographically. Of the total sample, 51% were special educators, 25% were related service staff, and 24% served in "other" roles consisting mainly of case managers, program administrators, and counselors. They served the full range of grade levels: 42% worked in secondary settings, 40% in elementary settings, and 19% in middle school settings. In addition, participants served the full range of students in terms of disability type and severity level, with most participants serving students with a wise variety of disabling conditions.

Participants ranged in age from 25 to 63 years old. The number of years in their current job ranged from 0-21, and years in the profession ranged from 0-

26. Given the particularly "at-risk" status of professionals who have been in the field 5 years or less (Singer, 1993), it is interesting to note that 35% of the total sample had been in the field five years or less, and 66% of the sample reported having been in their current job five years or less.

VII. Findings

The research was designed to assess the effects of stress management and peer collaboration interventions on the five outcome measures specified above. The research questions, analyses and hypotheses were as follows:

1. Does the order of treatment program delivery affect the overall treatment outcome? Recall that treatment groups 1 and 2 received the two components in reverse order. This made possible the experimental study of treatment order effects. No specific hypothesis was made regarding order effect. The two treatment groups were compared and group mean differences were statistically tested to determine whether or not treatment order made any difference.

2. Overall, do the treatment groups show greater improvement than the control groups? We hypothesized that treatment group participants' scores would improve on all dependent measures. Job satisfaction, organizational commitment and sense of personal accomplishment (a component of burnout) were expected to increase, while emotional exhaustion and depersonalization (two burnout components) were expected to decrease. Pre/post by treatment/control group differences were statistically tested. Referring to Figure 1, Cohort 1(Time 3 and Cohort 2 (Time 8) measurements were used as the post-measures, ensuring that the control group had not yet received intervention at the time of those post-measurements.

3. What are the latent effects of the intervention? Six-month and one-year follow-up data were collected on the first cohort's two treatment groups. A trend analysis of these data was completed to indicate whether change over time (if it occurred) was linear, quadratic, or cubic. In other words, the question was: are the intervention effects stable, or do they fluctuate in some detectable fashion over time? The pre-, immediately-post, six-month follow-up, and one-year follow-up means were analyzed for trends.

4. How did the respondents evaluate the peer collaboration and stress management components in terms of program goal importance and program success in achieving goals?

A series of repeated measures multivariate analysis of variance was used to answer these research questions. Multivariate statistical tests were completed and when appropriate, the univariate tests were observed. A decision-rule of 0.10 was used in order to guard against the Type II error. The intent was to

guard against the error of failing to recognize even slight effects which might nonetheless might be meaningful given the small sample size (and hence limited statistical power) afforded by this study.

Description of Results for Each Claim

Analysis 1

The treatment order effect was tested for each of the five dependent variables using a repeated measures MANOVA. Only Cohort 1 data was used for this analysis. Treatment group 1 received the stress management workshops followed by the peer collaboration program, and Treatment group 2 received the same two interventions in reverse order. The treatment groups 1 and 2 were compared on pre/post-measures, where the post-measure immediately followed the second intervention. The group means are reported in Table 3 (attached).

The two groups were not statistically different at the 0.05 level (Hotelling's T2 = 0.22; F = 1.123; df = 5,26). Thus, an order effect was ruled non-significant. This justified combining the two treatment groups for analyses involving treatment/control group comparisons. Pre/post tests are addressed in analysis 2 below.

Analysis 2

The first analysis, reported above, indicated that the order of intervention had no effect. This result warranted collapsing the two treatment groups together for a treatment/control comparison. Thus, the three treatment groups were combined, and the two control groups were combined. Using cohort 1(times 1 and 3) data, and cohort 2(times 6 and 8) data (see Figure 1attached), the treatment and control groups were compared. For all participants, a pre-measure was taken prior to any intervention. The treatment groups were post-measured immediately after each intervention was completed; control groups were administered corresponding measures.

Group by pre/post means on the five dependent measures are reported in Table 4 (attached). Looking at these data, the within-group pre/post means suggest the possibility of time effects, and the between-group post- means indicate possible group differences. Specifically, comparing the two groups over time, there appear to be interactions. For job satisfaction, depersonalization, personal accomplishment, and organizational commitment, the treatment group made desirable (albeit in some cases, slight) change, while the control group showed undesirable change. The treatment group showed relatively greater improvement (decrease) in emotional exhaustion.

A repeated measures multivariate analysis of variance was used to test for group effects, time effects, and group-by-time interaction effects. These

MANOVA results are summarized in Table 5. Again, we were testing the specific directional hypothesis that the treatment group would improve while the control group's scores might deteriorate. A decision rule of .10 was used, looking specifically for group-by-time interaction effects on all dependent variables.

No main group effects were observed. However, there were multivariate time effects (Hotellings T2 = 0.37; F = 4.74, df=5,61; $p < 0.01$) and, as hypothesized, there were multivariate interaction effects (Hotellings T2 = 0.34; F = 4.11, df=5,61; $p < 0.01$). Specifically, significant time effects were noted for emotional exhaustion and organizational commitment. Significant group by time interaction effects were observed on four of the five measures (job satisfaction, emotional exhaustion, personal accomplishment, and organizational commitment).

The MANOVA results in Table 5 clearly reflect the pattern of group means seen in Table 4. On all measures, the treatment group appears to have improved more than the control group. Statistically, group differences emerge only in light of the interaction effects. On all measures but depersonalization, changes over time depend on group membership. For emotional exhaustion, the treatment group's improvement was significantly greater than that of the control group. Also, organizational commitment significantly changed over time, albeit very slightly. The treatment group consistently showed greater positive change than did the control group. The lack of statistically significant group effects may be more a function low power due to small samples and large measurement errors. Low statistical power potentially masks small but meaningful change because it requires relatively large group differences for statistically significant results to emerge.

Analysis 3

A third analysis was conducted to examine the treatment group's pre/post/six-month and one-year follow-up mean scores. The research design included a six-month and one year follow-up measurement of treatment groups 1 and 2. These analyses were limited to these treatment groups only due to the wait-list control group's exposure to the interventions.

A repeated measures MANOVA was used to test for time effects and trend. Essentially this is a test of whether or not the pre/post/follow-up change is zero, linear, quadratic, or cubic. Table 6 contains the group descriptive statistics and MANOVA summary for Analysis 3. Study of the mean scores over time suggests the pattern of effects for each variable.

Linear trends were detected for job satisfaction, emotional exhaustion, and organizational commitment. For job satisfaction and organizational commitment there was an overall consistent increase in scores. Emotional exhaustion constantly decreased over the one-year period. The pattern of

means for depersonalization are best described with a cubic curve. Depersonalization dropped, then increased greatly, and at one year dropped to its lowest point. Personal Accomplishment is best described with a quadratic curve; the scores increased at first and then consistently dropped.

Overall, the treatment group showed a strong, sustained positive effect for job satisfaction, emotional exhaustion, and organizational commitment. A positive latency effect was observed for depersonalization, and a negative latency effect was observed for personal accomplishment.

Analysis 4

A final analysis was made of social validation data collected immediately following each intervention. Specific goals of each intervention were listed on the instrument. On a scale of 0 (not at all important/successful) to 3 (highly important/successful), the participants rated each goal's importance and the intervention's success with respect to each goal.

The data in Table 7 (attached) indicate that the participants regarded both the interventions' goals and the programs' success in meeting them as moderately to highly important/successful. Of the two interventions, the stress management intervention was rated somewhat more highly than the peer collaboration intervention. The relatively small standard deviations suggest a fairly consistent impression among the various participants.

In addition to providing numerical ratings, participants' written comments were solicited and summarized. Comments were on the whole extremely positive, and
emphasized the usefulness of the content in providing specific skills and strategies for dealing better with stressful job situations and preventing burnout. Sample remarks
include:

> *"I was well on my way to reaching a point of overload which could rapidly become burnout if I continued on the present course...This workshop has arrived in a timely fashion in my career. Everything has been of great value!"*
>
> *"The bottom line seems to be--I like kids and I'm really quite good at teaching them--now how can I make the rest of the stuff bearable? This course was quite a step in the right direction."*
>
> *"These programs helped me to examine some of the many stressful components in my workplace. I feel much better equipped to identify and deal with stressors. The course was greatly helpful."*

"I came into this program as a first year teacher looking for some ideas to keep me from retiring before my student loan was paid off....It's working, and I expect to continue to use the information I learned."

"The stress management class was fabulous--just what I needed at this time. I am using skills every day that I learned in class."

"The last couple of weeks have been crazy, but my peer collaborator helped me look at the situation with new eyes."

"I feel this will help me be a better teacher as well as a less frustrated one."

"Now I realize that, in important ways, I do have control and I can prevent an unhealthy ending to an important job."

"The course was and will continue to be one of the best things I ever did for myself and possibly the most important class I will ever take."

"I really got a lot from the sessions. It's well worth the time, energy and effort. I'm using some of the techniques and strategies in very real ways."

Participants' suggestions for improvement centered primarily on issues of time and scheduling logistics. Many people wanted longer sessions to allow for additional discussion/application opportunities, and suggested holding them in a more central location.

Other anecdotal and indirect indicators spoke to the programs' relevance. In spite of pre-intervention attrition from the study (due largely to schedule changes), attendance at all sessions was near 100%, which we found pleasantly surprising given that all sessions were held on participants' own time--no release time was granted.

We also received unsolicited feedback from administrators in which they noted the widespread positive reaction to the programs. In fact, one administrator commented that she could tell a definite difference in the ways her staff who had participated were coping with budget cuts and other stressors compared with those who had not participated.

VIII. Project Impact

The interventions resulted in positive change on factors related to retention/attrition. After participating in the 10-week, two-part program that

consisted of stress management and peer collaboration, special educators and related services personnel felt less burned out, and felt more satisfied with and committed to their jobs. In contrast, members of the wait-list control group became generally less satisfied, less committed and more burned out during the same time period.

In addition, participants' program ratings and written comments indicated that they found the program relevant, useful and enjoyable. Anecdotal evidence also suggested that the program made a substantial positive difference in participants' work lives and increased the likelihood of their remaining in their jobs longer than had they not participated.

The interventions developed and evaluated under this project and the results pertaining to them are promising for several reasons. First, the interventions targeted specific, alterable facets of the attrition problem for which "at-risk" professionals are in need of support and over which they have some control. The stress management and peer collaboration interventions developed/adapted and evaluated via this study are by no means a panacea, nor do they even come close to addressing the host of organizational and political factors requiring attention within beleaguered school systems. They do, however, represent viable, cost-effective avenues of immediate intervention on a few of the more visible and controllable aspects of the attrition problem.

By demonstrating statistically significant effects for the treatment group while the wait-list control groups was for the most part getting worse, the program would appear to be a meaningful means of offering support and assistance to special educators in the form of increased "self-preservation" skills for more effectively handling the stressors they will inevitably encounter.

A second way in which these results are meaningful pertains to methodology for studying retention-focused interventions. Recall Brownell & Smith's 1992 remark in their review article that stated that there had been no published empirical studies of retention-focused interventions. One possible reason for this lack of intervention research has to do with the nature of "the beast" called attrition that we seek as a field to study and tame. By definition, attrition requires lengthy passages of time to observe (or not observe, in the case of successful interventions). Moreover, it is an extremely complex, multi-faceted phenomenon, affected by a host of factors both individual and systemic, inherent and alterable. In short, it is a daunting problem substantively as well as methodologically. In the face of daunting problems, it can be hard to know where to begin.

While the ultimate measure of any retention intervention is the degree to which actual attrition is affected, observation of such an effect takes time. Particularly in pilot efforts, it can be useful to employ more expedient measures when addressing critical problems such as this one for which time is a luxury we

cannot necessarily afford. The identification and use of subjective dependent measures that have been demonstrated to be closely linked to actual attrition and retention, and which can thus serve as indicators of an intervention's potential effectiveness vis-a-vis actual retention, is part of this study's value.

One question regarding limited-duration interventions of the types described in this study concerns the maintenance of any observed gains over time. Moreover, one might expect that certain gains would take time to show up given the fact that most of the targeted skills require repeated practice and application before becoming an ongoing part of an individual's coping repertoire.

Results of this study suggest that, for the treatment groups tracked at 6-month and 1-year follow-up intervals, post-intervention improvements on emotional exhaustion, job satisfaction, and organizational commitment were maintained or improved further with the passage of time. Depersonalization scores temporarily worsened and then improved, while personal accomplishment scores improved initially and then dropped. Taken together, the follow-up data are relatively promising given the relatively short duration of the program and the absence of ongoing or follow-up intervention.

The fact that positive effects were found that related directly to retention, suggests that the interventions are worthy of dissemination to schools and districts searching for research-based strategies to augment their efforts to support and retain their special education and related services teaching staff.

Following is a listing of the dissemination activities that have been undertaken in connection with this project:

Publication(s)

Cooley, E. & Yovanoff, P. (1996). Supporting professionals-at-risk: Evaluating interventions to reduce burnout and improve retention of special educators. Exceptional Children, 62(4), pp. 336-355.

Presentation(s)

Cooley, E. (1995). Supporting Professionals-at-Risk: Preventing burnout of special educators. Invited presentation to California Dept. of Education's Special Education Fall Conference, Sacramento, CA.

Cooley, E. (1995). The Teacher Support and Retention Project. Invited presentation to California's Comprehensive System of Personnel Development Advisory Committee, Sacramento, CA.

Cooley, E. (1995). Developing and evaluating programs to support and retain special education professionals. Presented at the Comprehensive System of Personnel Development annual conference, Arlington, VA.

Cooley, E. (1995). Supporting professionals-at-risk: Evaluating programs aimed at increasing retention and reducing burnout among special educators. Presented at American Educational Research Association annual conference, San Francisco, CA.

Cooley, E. (1994). Supporting Professionals-at-Risk: Evaluating Interventions to Improve Retention of Special Educators, poster session at CEC's Teacher Education Division conference 11/94, San Diego, CA.

Cooley E. (1994). A staff development approach for supporting and retaining special educators. Presented at National Staff Development Council conference 12/94, Orlando, FL.

Cooley, E. (1994). Teacher Support and Retention Project, poster session at OSEP Project Directors' 7/94 Meeting, Washington, D.C.

Cooley, E. (1994). Evaluating programs to improve retention of special education professionals. Presented 1/94 to the International Public Policy Conference on Special Education, Council of Administrators in Special Education, San Diego, CA.

Cooley, E. (1994) Designing and evaluating programs to support professionals-at-risk: Preventing burnout and improving retention of special educators. Presented 4/94 to the Council for Exceptional Children Annual National Conference, Denver, CO.

Cooley, E. (1994). Preventing burnout and turnover among educators-at-risk. Presented to Council for Administrators of Special Education (CASE) International Policy Conference, San Diego, CA.

Cooley, E. (1994). Retaining special education professionals: Where do we begin? Invited presentation to the California Division of the Council for Administrators in Special Education, Irvine, CA.

Cooley, E. (1993). Supporting professionals-at-risk: Evaluating programs to prevent burnout and improve retention of special educators. Presented at the Teacher Education Division of the Council for Exceptional Children Annual National conference, Orlando, FL.

Cooley, E., & Garrison, D. (1993) Beating job burnout: A timely workshop for educators-at-risk. Half-day workshop presented to 100 teachers, special educators, and related service providers on Oregon Statewide Teacher Inservice Day, Eugene, OR.

Cooley, E. (1992). Retention interventions: Piloting two approaches to reduce burnout among special educators. Poster session presented at The Association for Persons with Severe Disabilities (TASH) Annual National Conference, San Francisco, CA.

Cooley, E., & Glang, A. (1992). Designing effective services for students with traumatic brain injury, their families, and professionals who serve them. Poster session presented at The Association for Persons with Severe Disabilities (TASH) Annual National Conference, San Francisco, CA.

Cooley, E. (1992, April). Reducing burnout among special educators. Poster session presented at Oregon Dept. of Education's Therapy in Educational Settings Conference, Eugene, OR.

Dissemination/Training Activities Stemming from the Project

Nevada Dept. of Education and National Early Childhood Technical Assistance Center, Carson City, NV and Chapel Hill, NC. (1996)
Conducted a 2-day "survival skills" workshop plus two follow-up sessions in Elko, Nevada for rural early childhood special educators, consisting of stress management strategies and training in peer collaboration techniques.

Merced County Office of Education, Merced, California. (1996)
Conducted all-day workshop for special and general educators on the topic of preventing job burnout.

Bethel School District, Eugene, Oregon. (1994).
Conducted all-day workshop for 150+ teachers and other school personnel on strategies for preventing and alleviating job burnout.

Cascade Regional Programs, Albany, Oregon (1994). Conducted all-day workshop for itinerant related service providers and specialists on strategies for coping more effectively with job stress and preventing burnout.

Child Development & Rehabilitation Center, University of Oregon.
Conductedall-staff inservice on preventing/alleviating job burnout.

Springfield School District, Springfield, Oregon.
Conducted half-day inservice on teacher stress and burnout for all special education staff members in the district.

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Figure 1. Cross-Over Design Measurement Timeline

Month	1	2	3	4	5	6	7	8	9	10	11	12
Cohort 1 (Year 1)												
Treatment 1	Pre1 n=21	Stress Management	Post1 n=21	Peer Collaboration	Post2 n=20		Post3 n=21					Post4 n=20
Treatment 2	Pre1 n=16	Peer Collaboration	Post1 n=14	Stress Management	Post2 n=14		Post3 n=14					Post4 n=14
Wait-List Control 3	Pre1 n=16				Pre2 n=15	Stress Management	Post1 n=16	Peer Collaboration	Post2 n=14			Post3 n=15
Cohort 2 (Year 2)												
Treatment 4	Pre1 n=12	Stress Management	Post1 n=10	Peer Collaboration	Post2 n=9							
Wait-List Control 5	Pre1 n=17				Pre2 n=21	Stress Management	Post1 n=22	Peer Collaboration	Post2 n=19			

Table 1. Occupation and Grade Level by Treatment Group

count row percent column percent	Treatment Group		
	Control	Treatment	Row Total
Occupation $\chi^2 = 0.88$, df = 2			
Special Educator	15 44.1 48.5	19 55.9 52.8	34 50.7
Related Service	7 41.2 22.6	10 43.8 27.8	17 25.4
Other	9 56.3 29.0	7 43.8 19.4	16 23.9
Column Total	31 46.3	36 53.7	67 100.0
Grade Level $\chi^2 = 1.38$, df = 2			
Elementary	10 38.5 33.3	16 61.5 45.7	26 40.0
Middle	7 58.3 23.3	5 41.7 14.3	12 18.5
High	13 48.1 43.3	14 51.9 40.0	27 41.5
Column Total	30 46.2	35 53.8	65 100.0
Gender $\chi^2 = 4.89^*$, df = 1			
Male	6 85.7 19.4	1 14.3 2.8	7 10.4
Female	25 41.7 80.6	35 58.3 97.2	60 89.6
Column Total	31 46.3	36 53.7	67 100.0

Table 2. Age, Years in Current Job, and Years in Profession by Experimental Group

Variable	Experimental Group					
	Control (n = 31)		Treatment (n = 36)		Total (n = 67)	
	M	SD	M	SD	M	SD
Age t = 0.38, df = 65	42.0	7.3	41.29	7.9	41.6	7.6
Yrs. in Current Job t = 1.38, df = 65	4.8	4.4	6.3	4.6	5.6	4.6
Yrs. in Profession t = 0.60, df = 65	10.2	7.3	9.3	6.0	9.7	6.6

Table 3. Analysis 1 Group Descriptive Statistics on Five Dependent Measures*

		Treatment Group					
		Treatment 1 (n = 17)		Treatment 2 (n = 13)		Total (n = 30)	
Dependent Variable		M	SD	M	SD	M	SD
Job Satisfaction	pre	4.95	0.95	4.84	0.83	4.90	0.89
	post2	5.11	0.77	5.19	0.76	5.15	0.76
MBI–Emotional Exhaustion	pre	31.18	8.18	33.08	10.60	32.00	9.18
	post2	25.47	12.07	27.39	9.44	26.30	10.87
MBI–Depersonalization	pre	7.94	5.58	7.08	7.91	7.57	6.58
	post2	8.77	6.75	4.92	4.65	7.10	6.15
MBI–Personal Accomplishment	pre	37.17	6.03	38.69	3.83	37.83	5.17
	post2	39.53	5.47	38.15	6.01	39.37	5.61
Organizational Commitment	pre	4.01	0.52	4.06	0.53	4.03	0.52
	post2	4.15	0.55	4.17	0.45	4.16	0.50

*The group sample sizes reported in Table 3 are based on a deletion of cases which did not complete at least one of the 10 measurements.

Table 4. Group Pre/Post Descriptive Statistics on Five Dependent Measures*

		Treatment Group					
		Control (n = 31)		Treatment (n = 36)		Total (n = 67)	
Dependent Variable		M	SD	M	SD	M	SD
Job Satisfaction	pre	5.16	1.02	4.95	0.82	5.05	0.92
	post	5.04	0.81	5.13	0.71	5.09	0.75
MBI–Emotional Exhaustion	pre	29.10	11.55	31.68	8.93	30.48	10.23
	post	28.19	12.51	26.14	10.70	27.09	11.53
MBI–Depersonalization	pre	6.45	5.53	7.98	6.57	7.23	6.11
	post	6.77	6.31	7.64	6.46	7.24	6.36
MBI–Personal Accomplishment	pre	39.84	7.02	37.64	5.21	38.66	6.17
	post	37.90	6.64	39.92	5.54	38.99	6.12
Organizational Commitment	pre	4.77	0.85	4.46	0.98	4.60	0.93
	post	4.52	0.97	4.47	0.96	4.50	0.96

*The group sample sizes reported in Table 4 are based on a deletion of cases which did not complete at least one of the 10 measurements.

Table 5. Group by Time MANOVA Summary

Source	F	df	eta²
Between Groups (Control–Treatment)			
Job Satisfaction	0.106	(1,65)	0.002
MBI–Emotional Exhaustion	0.01	(1,65)	0.000
MBI–Depersonalization	0.71	(1,65)	0.01
MBI–Personal Accomplishment	0.004	(1,65)	0.001
Organizational Commitment	0.05	(1,65)	0.001
Within Groups (Time–Pre/Post)			
Job Satisfaction	0.107	(1,65)	0.002
MBI–Emotional Exhaustion	11.662***	(1,65)	0.15
MBI–Depersonalization	0.000	(1,65)	0.000
MBI–Personal Accomplishment	0.108	(1,65)	0.002
Organizational Commitment	2.362	(1,65)	0.000
Group by Time			
Job Satisfaction	2.758*	(1,65)	0.04
MBI–Emotional Exhaustion	6.030**	(1,65)	0.09
MBI–Depersonalization	0.309	(1,65)	0.01
MBI–Personal Accomplishment	16.412***	(1,65)	0.20
Organizational Commitment	2.916*	(1,65)	0.06

***$p < 0.01$, **$p < 0.05$, *$p < 0.10$

Table 6. Analysis 3 Group Descriptive Statistics on Five Dependent Measures*

Dependent Variables	Measurement Period	Treatment Groups 1 and 2 (n = 27) M	SD	Statistically Best Fitting Trend
Multivariate Test of Time Effect, Hotellings $T^2 = 2.97$; $F = 2.378^*$; df = 15,12				
Job Satisfaction	pre	4.88	0.89	linear
	immediate post	5.12	0.78	
	6 month follow-up	5.06	0.97	
	1 year follow-up	5.22	0.91	
MBI – Emotional Exhaustion	pre	32.07	8.79	linear
	post	26.52	11.27	
	6 month follow-up	26.59	9.95	
	1 year follow-up	24.67	11.90	
MBI – Depersonalization	pre	7.52	6.57	cubic
	post	7.30	6.24	
	6 month follow-up	8.22	6.53	
	1 year follow-up	7.04	5.59	
MBI – Personal Accomplishment	pre	37.78	5.32	quadratic
	post	39.22	5.84	
	6 month follow-up	37.96	8.22	
	1 year follow-up	37.59	6.65	
Organizational Commitment	pre	4.40	1.03	linear
	post	4.43	1.02	
	6 month follow-up	4.36	1.12	
	1 year follow-up	4.68	0.88	

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Table 7. Importance and Success Ratings of Interventions

Rating Scale: 0 (not at all); 1 (mildly); 2 (moderately); 3 (highly)					
		Importance		Success	
Intervention	Group	M	SD	M	SD
Peer Collaboration	Overall (n = 78)	2.56	0.52	2.18	0.59
	group 1 (n = 20)	2.52	0.60	2.08	0.59
	group 2 (n = 16)	2.43	0.56	2.14	0.52
	group 3 (n = 14)	2.60	0.55	2.37	0.59
	group 4 (n = 9)	2.41	0.56	2.31	0.47
	group 5 (n = 19)	2.75	0.30	2.13	0.69
Stress Management	Overall (n = 77)	2.67	0.34	2.50	0.34
	group 1 (n = 21)	2.58	0.35	2.39	0.37
	group 2 (n = 14)	2.61	0.58	2.52	0.26
	group 3 (n = 14)	2.71	0.26	2.47	0.41
	group 4 (n = 10)	2.72	0.22	2.44	0.35
	group 5 (n = 18)	2.75	0.17	2.53	0.32